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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,690	12/20/2001	Tatsuo Chiba	TSUK 0005	5149

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EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,690

Applicant(s)

CHIBA ET AL.

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16, and 18-40, are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,648,159 (Sato) in view of U. S. Patent No. 6,207,345 (Kimura et al).

Sato, in col 2, lines 12-26, lines 30-34, and lines 61-67, in col 3, lines 1-16, in col 7, lines 27-67, in col 9, lines 24-67, and in col 10, lines 15-21, discloses a photosensitive element (dry resist) comprising a support film that comprises a biaxially oriented polyester film (laminated film), a resin layer (layer A) that contains particles formed on at least one side of the polyester film, and a photoresist layer (photosensitive resin composition) formed on the opposite side of the polyester film (laminated) forms a coating film that is subjected to drying, wherein the photoresist composition comprises a polymeric binder, a photopolymerizable compound including a methacrylate compound (ethylenically unsaturated group), and a photopolymerization initiator (photodimerizable materials). Sato, in col 9, lines 23-45, that the heat shrinkage ratio in the longitudinal direction (biaxially stretched in the longitudinal direction) of the support film (polyester laminated film) that is heated for at least a total of 30 minutes (heat many times) to a temperature range of about 75°C to about 250°C is less than 30% (claims 1-6, 8, 12-

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14). Sato, in col 7, lines 1-10, discloses that the laminated film (photoresist coated polyester film, dry resist) has a remarkable improvement in the slipperiness of the laminated film i.e., the contact angle is greater than 1 (claim 7). Sato, in col 4, lines 6-7, discloses that the average particle size of the particles in layer A (resin layer A) is in the range of about 0.01 to 3.0 μ (claim 9). Sato, in col 3, lines 18-21, discloses that the thickness of the resin layer A is about 0.05 to about 3 μ (claim 10). Sato, in col 6, lines 12-14, discloses that the haze of the film (laminated film) is about 1% (claim 11). Sato, in col 6, lines 41-42, discloses that the laminated film is wound up and has a surface roughness that is not less than 0.008 μ and therefore has excellent winding characteristics (no winding deviation) (claims 20-21). Sato, in col 12, lines 1-14, discloses that the laminated film structure (dry resist) is laminated on a glass substrate and irradiated with UV light during exposure and then developed to form a resist pattern which is then subjected to etching to form circuit patterns (wiring patterns) (claims 22-23). Sato, in col 12, lines 1-14, discloses that the laminated film structure (dry resist) is laminated on a glass substrate and irradiated with UV light and developed and etched to form a resist pattern which is then subjected to etching to form circuit patterns (wiring patterns, greater than 1 μ width) (claims 31-33, 29, and 39).

The difference between the claims and Sato is that Sato does not disclose that the photopolymerizable compound comprises a bisphenol A type (meth)acrylate compound. Sato does not disclose that the binder polymer in the photosensitive resin composition has a weight average molecular weight of about 20,000 to about 300,000 (claim 15). Sato does not disclose that the acid value of the binder polymer is 50 to 300

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mg KOH/g (claim 16). Sato does not disclose that the photopolymerization initiator is 2,4,5-triaryl imidazole dimer (claim 18). Sato does not disclose the formulation amounts of the components (A), (B), and (C) recited in claim 19. Sato does not disclose that the unevenness on the side surface of the resist pattern or the wiring pattern is 0 to 3μ (claims 24, and 34). Sato does not disclose that the number of unevenness larger than 3.0μ on the center line of the side surface of the resist pattern or the wiring pattern is 0 to $5/4\text{mm}$ (claims 25, and 35). Sato does not disclose that the average roughness on the side surface of the resist pattern or the wiring pattern is 0 to 2μ (claims 26, and 36). Sato does not disclose that the maximum height on the side surface of the resist pattern or the wiring pattern is 0 to 3μ (claims 27-28, and 37-38). Sato does not disclose that the height of the resist pattern is 1 to 150μ (claim 30). Sato does not disclose that the height of the wiring pattern is 0.01 to 200μ (claim 40).

Kimura, in col 3, lines 65-67, in col 4, lines 2-5, and lines 54-64, and in col 5, lines 7-15, discloses that the photopolymerizable compound in the photosensitive resin composition includes compounds such as methacrylates of bisphenol A. Kimura, in col 4, lines 5-12, discloses that the polymeric binder of the photosensitive resin composition includes a carboxyl group-containing binder having a weight average molecular weight of about 10,000 to about 500,000, and said binder polymer has an acid value of about 30 to 300. Kimura, in col 4, lines 33-44, discloses that the photopolymerization initiator is 2,4,5-triarylimidazole dimer. Kimura, in col 9, Table 1, discloses a photosensitive resin composition that includes 60 parts by weight of the binder polymer, 40 parts by weight of photopolymerizable compound, and 5 parts by weight of the polymerization

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initiator. Kimura, in col 6, lines 66-67, in col 7, lines 1-8, in col 8, lines 49-67, and in col 9, lines 1-20, discloses that the resist pattern developed from the laminate film has a lowered or no surface unevenness or surface roughness and has a resist pattern or corresponding wiring pattern (resist pattern imparts the same surface roughness to the corresponding wiring pattern) height of 14 μ .

Therefore, it would be obvious to a skilled artisan to modify Sato by employing the photopolymerizable compound suggested by Kimura in the photosensitive resin composition and employing the photosensitive composition (components A, B, and C) suggested by Kimura because Kimura, in col 3, lines 65-67, and in col 4, lines 1-5, discloses that employing the suggested composition in the photosensitive resin composition enables development of the imaged resist in a dilute alkaline developer, and in col 3, lines 16-20, discloses that using the resin composition suggested in the laminated film results in a laminate film that has a haze of less than 10%.

Response to Arguments

3. Applicant's arguments, see Amendment B, filed April 7, 2004, with respect to the 102 (b) rejection(s) of claim(s) 1-14, 17, and 20-23, under U. S. Patent 5,648,159 (Sato et al) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over claims 1-14, 17, 15-16, and 18-40.

A) Applicants argue that Sato and Kimura does not teach a bisphenol A type methacrylate compound as recited in claims 1, 2, 5, and 7.

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Sato teaches a photopolymerizable compound. Kimura is depended upon to disclose a photopolymerizable compound that comprises a methacrylate of bisphenol A. See paragraph 2.

B) Applicants argue that Sato fails to teach that the elements pertaining to the contact angle.

Sato, in col 7, lines 1-10, discloses that the laminated film (photoresist coated polyester film, dry resist) has a remarkable improvement in the slipperiness of the laminated film i.e., the contact angle is greater than 1. Additionally, contact angle is a property of a given element. The product claimed is a photosensitive element having a layer of photosensitive resin. Sato teaches a photosensitive element that comprises a photosensitive resin layer. Therefore, Sato's photosensitive element possesses the same properties (such as contact angle) as the claimed photosensitive element.

C) Applicants argue that Sato does not teach that the total height of winding deviation at the edge surface of the photosensitive element roll after naturally dropping the photosensitive element roll five times from the height or 10cm to the collision surface so that the axis direction of the core becomes perpendicular to the collision surface is 1mm or less.

Sato, in col 6, lines 41-42, discloses that the laminated film is wound up and has a surface roughness that is not less than 0.008μ and therefore has excellent winding characteristics (no winding deviation). Sato teaches a photosensitive element roll of the claimed composition and therefore possesses the same properties (less than 1mm winding deviation) of the claimed photosensitive roll. The process limitations in

claim 21 are noted. However, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

The disclosed product of Sato and the instantly claimed product appear to be essentially the same, comprised of the same components, photosensitive element roll, and used in the same manner. In the event any differences can be shown for the product of the product-by-process claim 21 as opposed to the product taught by Sato, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Applicant further argues that the reference does not teach the instant product by process limitations. As discussed above, the product by process limitations have been noted. However, it has been held that even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. See *In re Thorpe*, 227 USPQ 964.


Once the examiner provides a rationale tending to show that the claimed product appears to be the same or only slightly different from that of the prior art, the burden shifts to applicant to come forward with evidence establishing an unobvious difference

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between the claimed product and the product of the prior art. Applicant has not met this burden. There has been no showing that the product instantly claimed differs structurally or in any way, by virtue of its process of making, from the product taught by the prior art.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd

July 14, 2004.


JOHN A. MCPHERSON
PRIMARY EXAMINER